

# INTELLIGENT GAS DETECTOR

Gas Detection For Life

**GD-70D Series**



## Features

- Monitor combustibles, O<sub>2</sub>, and a wide range of toxics
- Plug and play intelligent sensors retain calibration and sensor data
- Common platform (main unit / sensor / pump) for all detection methods
- Universal main unit (all sensor types)
- Multifunctional sensor unit (new Intelligent sensor)
- No internal tubing (main unit) / No coil (pump)
- Front access, no tools required, easy sensor and pump replacement
- Large size LCD screen
- Various communication methods available (4-20mA, LonWorks, and PoE)
- Minimal maintenance cost through enhanced troubleshooting firmware functions
- Small mounting space
- Environmentally friendly
- Wide variety of sensors available

The new Model GD-70D smart gas detection transmitter series sets a new standard for performance, flexibility, and versatility. The GD-70D sample-draw transmitter offers an array of sensor technologies unmatched in the industry, including unique offerings, such as our hydrogen-specific or LEL versions.

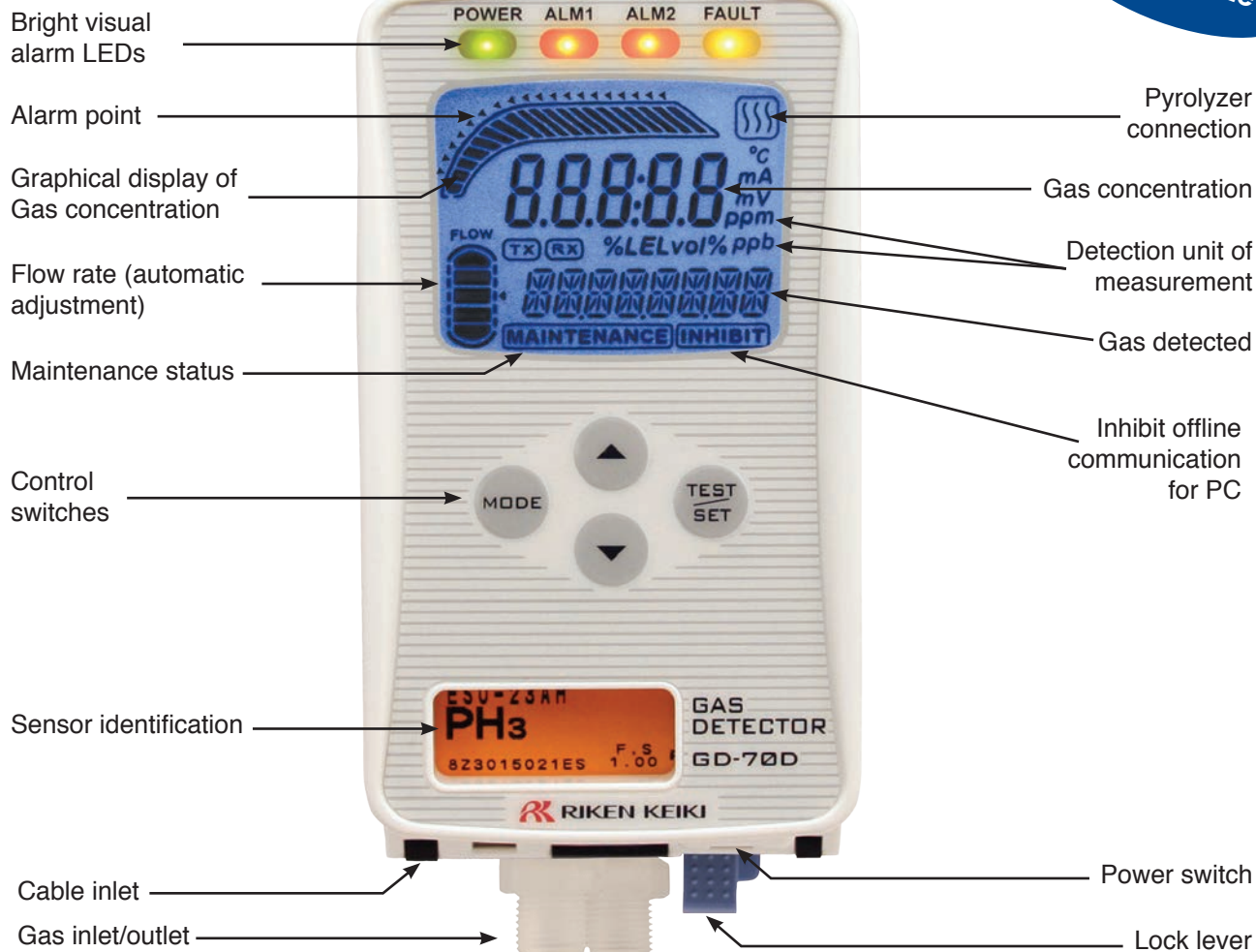
The long life high capacity pump and wide variety of sensing elements are replaceable in a few seconds, with no tools required! The smart sensors retain all calibration and sensor-specific data in non-volatile memory, so sensors can be hot-swapped in the field with no programming required. The sensors also retain calibration information, which means they can be conveniently calibrated separate from the transmitter, avoiding transport of calibration gases to field locations. The GD-70D firmware automatically corrects for long-term zero and span “drift” minimizing maintenance and maximizing reliability.

The GD-70D can be used as a stand-alone device, offering a number of communication protocols to existing PLC systems, or can be integrated with RKI’s Beacon series of single and multi-channel controllers.

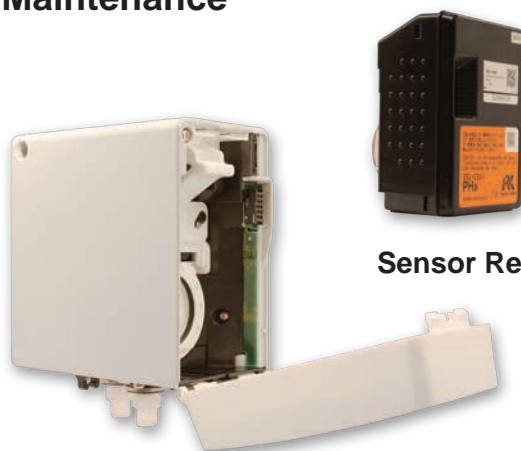
All GD-70D transmitters include a large, easy to read integral LCD display, tri-color bar graph for visual notification of alarm status, programmable low and high alarm relays, and fault relay. Pump flow is self-tuning for maintenance-free operation. Because all GD-70D base units are identical, sensors can be interchanged with no programming or tools required, resulting in maximum flexibility to the user. NEMA 4X 115 VAC versions available.

# GD-70D Series

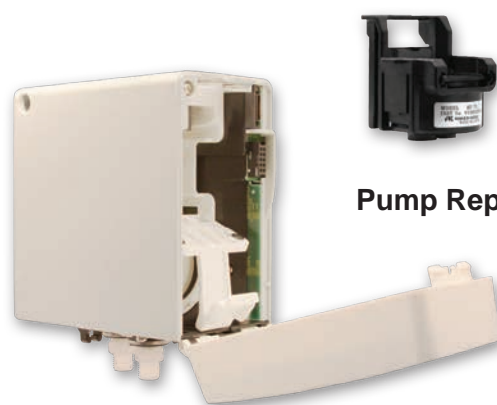
Actual Size



## Tool Free Maintenance



Sensor Replacement



Pump Replacement

Specifications subject to change without notice.

MAIN UNIT			
Model	GD-70D	GD-70D-NT	GD-70D-ET
Communication	4-20mA DC	DC power line communication	PoE method
Detection principle	Different type depending upon sensor unit and detectable gas (see table)		
Sampling method	Sample draw (auto-adjustment of flow rate) 0.5 L / min +/-10%		
Display	<ul style="list-style-type: none"> <li>• Large LCD display (white backlight)</li> <li>• Flow rate, communication status, pyrolyzer status, gas detected</li> </ul>		<ul style="list-style-type: none"> <li>• Gas concentration</li> <li>• Error code, content of error</li> </ul>
Gas alarms	Two alarm levels: 1st alarm - Red	2nd alarm - Red	Fault alarm - Yellow
External output	1st, 2nd, and trouble alarms: Relay contact output for each alarm		
Self diagnostic function	System failure, sensor failure, flow failure, communication error NT / ET / Analog		
Datalogging	Event history, alarm history, calibration history. Alarm trend (180 sec before / after 1st alarm)		
Operation temp. & humidity	0 ~ 40°C, 30 ~ 70% RH (non-condensing)		
Operating settings	All operational settings are user adjustable through front panel		
Power requirements	DC 24V+/- 10%, approx 1.5W (Max 4W including sensor unit) Note: Approx. 2.5W (Max 5W) with SGU sensor unit		PoE standard arrangement
Dimensions	2.8"W x 4.7"H x 5.9"D (70W x 120H x 150Dmm)		
Weight	Approx. 0.9kg (2.0lbs), including sensor unit		
Mounting	Wall-mounting base plate by 2 or 3 screws		
Sampling tubing	4 x 6mm PTFE tubing recommended. Tube fittings provided as standard accessories		
Bushing	Cable type varies depending on communication method (Cable bushing optional)		

SENSOR UNIT				
Model	ESU	SGU	SSU	NCU
Detection principle	Electrochemical cell	Semiconductor	Pyrolysis-particle	Catalytic combustion
Gas detected and detection range	Refer to list of detectable gases	0-2000ppm H <sub>2</sub> , CH <sub>4</sub> , or CH <sub>2</sub> F <sub>2</sub> (R-32) in air and others	0-15ppm TEOS in air	0-100% LEL H <sub>2</sub> , CH <sub>4</sub> , and others
Self diagnosis function	Sensor trouble, system failure			
Date logging function	Event history, alarm history, calibration history, Alarm trend (60 sec. before/after 1st alarm)			

PYROLYZER UNIT	
Model	PLU-70
Application	NF <sub>3</sub> / TEOS gases detected in air
Usage	Used by connecting to "GD-70D" (Main unit)
Power Lamp	LED (Green color) Normal: Light-on Warming-up: Flashing at every 1 sec interval Trouble: Flashing at every 0.2 sec interval
Self-diagnostic function	Pyrolyzer unit trouble Fan trouble System trouble
Operating temp. & humidity	0-40° C, 30-70% RH (non-condensing)
Operational settings	All operational settings are user adjustable through front panel
Power requirements	DC 24V+/- 10%, approx. 25W (max)
Dimensions	2.8"W x 4.7"H x 5.9"D (70W x 120H x 150Dmm)
Weight	Approx. 1.2kg (2.6lbs)
Mounting	Wall-mounting base plate by 2 or 3 screws
Sampling	4x6mm PTFE tubing recommended. Tube fittings provided as standard accessories
Bushing	1.25sq 2 core cable for power supply DC24V (Cable bushing optional)

# GD-70D Series

ESU Gas Detected		Detection Range	ACGIH TLV-TWA	Part #
Ammonia	NH3	75 ppm	25 ppm	GD-70D-NH3
Arsine	AsH3	0.2 ppm	5 ppb	GD-70D-ASH3
Boron Trichloride	BCl3	15 ppm		GD-70D-BCl3
Boron Trifluoride	BF3	9 ppm	0.1 ppm	GD-70D-BF3
Bromine	BR2	1 ppm	0.1 ppm	GD-70D-BR2
Carbon Monoxide	CO	75 ppm * 150 ppm 300 ppm *	25 ppm	GD-70D-CO-01/02/03/11/12/13
Chlorine	Cl2	3 ppm 1.5 ppm *	0.5 ppm	GD-70D-Cl2
Chlorine Trifluoride	ClF3	0.6 ppm	(C) 0.1 ppm	GD-70D-ClF3-A
Diborane	B2H6	0.3 ppm	0.1 ppm	GD-70D-B2H6
Dichlorosilane	DCS	15 ppm		GD-70D-DCS
Disilane	Si2H6	15 ppm	(C) 2 ppm	GD-70D-Si2H6
Dimethylamine	(CH3)2NH	15 ppm	5 ppm	GD-70D-DMA
Diethylamine	(CH3CH2)2NH	15 ppm	5 ppm	GD-70D-DEA
Fluorine	F2	3 ppm	1 ppm	GD-70D-F2
Germane	GeH4	0.8 ppm	(C) 2 ppm	GD-70D-GeH4
Hydrogen Bromide	HBr	6 ppm, 9 ppm *	(C) 2 ppm	GD-70D-HBR-06/-09
Hydrogen Chloride	HCl	6 ppm, 15 ppm *	(C) 2 ppm	GD-70D-HCL-06E/15E
Hydrogen Cyanide	HCN	15 ppm	1 ppm	GD-70D-HCN
Hydrogen Fluoride	HF	9 ppm, 3 ppm *	0.5 ppm	GD-70D-HF-03/-09
Hydrogen Peroxide	H2O2	3 ppm		GD-70D-H2O2
Hydrogen Selenide	H2Se	0.2 ppm	0.05 ppm	GD-70D-H2Se
Hydrogen Sulfide	H2S	1 ppm 30 ppm	1 ppm	GD-70D-H2S-01/-30
Methylamine	CH3NH2	15 ppm	5 ppm	GD-70D-CH3NH2
Nitric Oxide	NO	100 ppm	25 ppm	GD-70D-NO
Nitrogen Dioxide	NO2	9 ppm 15 ppm	3 ppm	GD-70D-NO2-09
Nitrogen Tetraoxide	N2O4	15 ppm		GD-70D-N2O4
Nitrogen Trifluoride	NF3	30 ppm	10 ppm	GD-70D-NF3
Oxygen	O2	25% Vol.	—	GD-70D-OXY-EC
Ozone	O3	0.6 ppm	0.1 ppm	GD-70D-O3
Phosphine	PH3	1 ppm	0.3 ppm	GD-70D-PH3-AH
Silane	SiH4	15 ppm	5 ppm	GD-70D-SiH4-AH/DH
Silicon Tetrachloride	SiCl4	15 ppm		GD-70D-SiCl4
Silicon Tetrafluoride	SiF4	9 ppm		GD-70D-SiF4
Sulfur Dioxide	SO2	6 ppm	—	GD-70D-SO2
Sulfur Tetrafluoride	SF4	9 ppm		GD-70D-SF4
Tetraethyl Orthosilicate	TEOS	15 ppm		GD-70D-TEOS
Trichlorosilane	TCS	15 ppm		GD-70D-TCS
Trimethylamine	(CH3)3N	15 ppm	5 ppm	GD-70D-TMA

SGU Gas Detected		Detection Range	ACGIH TLV-TWA	Part #
Carbonyl Sulfide	COS	2,000 ppm	—	GD-70D-MCOS
Dichloroethene	C2H2CL2	600 ppm	200 ppm	GD-70D-MC2H2CL2
Dichlorethylene	DCE	600 ppm		GD-70D-MDCE
Dichloromethane	CH2CL2	2,000 ppm	50 ppm	GD-70D-MDCM
Difluoromethane	R-32	2,000 ppm	1,000 ppm	GD-70D-MR32
Fluoro Methane	R-41	2,000 ppm	1,000 ppm	GD-70D-MR41
Hydrogen	H2	500 ppm * 1,000 ppm * 2,000 ppm 2% Vol.	—	GD-70D-MH2-S500 GD-70D-MH2-S1K GD-70D-MH2-S2K GD-70D-MH2-20K
Isopropyl Alcohol	CH3CHOHCH3	2,000 ppm	200 ppm	GD-70D-MIPA-2K
Methane	CH4	2,000 ppm 5,000 ppm *	—	GD-70D-MCH4-2K GD-70D-MCH4-5K GD-70D-MCH4-20K GD-70D-MCH3OH-1 GD-70D-MCH3OH-2
Methyl Alcohol	CH3OH	1,000 ppm 2,000 ppm *	200 ppm	GD-70D-MCH3CH
Propane	CH3H8	2,000 ppm 5,000 ppm *	1,000 ppm	GD-70D-MC3H8-2K GD-70D-MC3H8-2K
NCU Gas Detected		Detection Range	LEL % Vol. Levels	
Hydrogen	H2	100% LEL	—	GD-70D-LEL-H2
Hydrogen	H2	2% Vol.	—	GD-70D-H2-20K
Isobutane	i-C4H10	100% LEL	—	GD-70D-ISOB
Methane	CH4	100% LEL	—	GD-70D-LEL-CH4
Methane	CH4	2% Vol.	—	GD-70D-CH4-20K
SSU Gas Detected		Detection Range	ACGIH TLV-TWA	
Trimethyl Silane	TMS	15 ppm	—	GD-70D-TMS
Trimethoxysilane	TRIMOS	15 ppm	—	GD-70D-TRIMOS
Tetraethyl Orthosilicate	TEOS	15 ppm	10 ppm	GD-70D-TEOS

Sensor accuracy= +/- 10% of reading or +/- 5% of full scale, whichever is greater.

\* Special order for non-standard range



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